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The Kelly Report on People in the Electronic Office



Conducted by Research & Forecasts, Inc.

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Introduction

The business office today is undergoing a fundamental transition. What was hailed, not so long ago, as the office of the future is fast becoming the present reality for many of the nation's businesses. The primary catalyst for this change is sophisticated electronic equipment such as word processors and mini-computers. Almost all (98%) of the nation's largest firms (those on the Fortune 1300 list) already own some type of electronic equipment. When it comes to future job market prospects, more of these companies plan to hire employees with word processing skills than any other type of management support staff.

Office automation has generated a great deal of excitement and much has been written about this contemporary phenomenon. By and large, the focus of these books, studies and articles has been on the technology itself: the dazzling speed, capacity and capability of equipment, the impressive sales potential, and competitive marketing strategies. Relatively little attention has been focused on the impact of automation on people in this office. With few exceptions, the treatment of this issue (sometimes called "the people problem") has concentrated on organizational considerations and managerial methods of "overcoming" resistance.

With this survey, Kelly Services, Inc., the world's largest supplier of office/clerical temporary help, launches a series of studies on the automated office that places the emphasis on the human element, including the social and psychological implications, values and objectives of decision-making, and employment potential. This first study explores the transitional process as revealed by the actions of office decision-makers and their employees. It also measures where American business stands today in that process, in terms of equipment for ownership and usage.

I. The Decision To Automate

The transition to an automated office is a long-range process that requires a series of important—and often very costly—decisions. Besides establishing its automation objectives, a company must assign responsibility for making the necessary judgments to implement them. The person selected to be the “decision-maker” must chart new directions for future operations of the company with few established guidelines.

Among specific questions that have to be determined are what office functions to automate, what equipment to acquire, how to best organize operations, how to meet the need for properly trained personnel, and how to manage any human problems that might arise from such a fundamental change in office procedures. The problems are often compounded by the decision-maker's own lack of technical expertise and consequent reliance on the manufacturer or supplier.

- 98% of FORTUNE 1300 companies own some type of data or word processing equipment.
- In 60% of these companies, the decision to automate was made by committee.
- Management desire “to improve worker productivity” ranks highest as a reason to automate.
- The desire “to decrease office personnel costs” and “office supply costs” ranks lowest.
- Most companies (82%) met the need for skilled personnel to operate new equipment by training their own staff.
- Half of the FORTUNE 1300 employers provided their own training, while a third allowed the equipment manufacturer to conduct this training.

The State of Automation

Almost all (98%) of the FORTUNE 1300 companies contacted have already decided to introduce sophisticated electronic equipment, such as electronic typewriters and word or data processing equipment into their offices. (See Table 1.1). The remaining 2% are in the process of considering purchasing such equipment (Table 1.2). It is therefore clear that the basic question regarding the desirability of automation has been answered overwhelmingly in the affirmative by virtually all of these major corporations. Not a single respondent said his company has considered and then rejected automation.

Table 1.1: Has your company begun to introduce electronic equipment, such as electronic typewriters, word processing equipment, data processing equipment, desk-top terminals, etc.?

	<u>%</u>
Yes	98
No	2
(Number of Respondents)	(500)

Table 1.2: If not, is your company considering purchasing any of this equipment?

	<u>%</u>
Yes	100
No	0
(Number of Respondents)	(9)

While nearly all the companies came to the same conclusion, how they reached their decisions varies significantly. Specifically, the number and identity of the decision-maker(s) charged with the responsibility of equipment choice were diverse (Table 1.3). In more than half the companies (60%), the decision to introduce new equipment was made by a committee, compared to a quarter (23%) of the sample in which the decision was made by a single executive. In the remaining 17% of the cases, both approaches were used.

Table 1.3: How is (was) the decision to implement new equipment arrived at in your company? Is it through committee or individual?

	<u>%</u>
Committee	60
Individual	23
Both	17
(Number of Respondents)	(482)

The Objectives of Automation

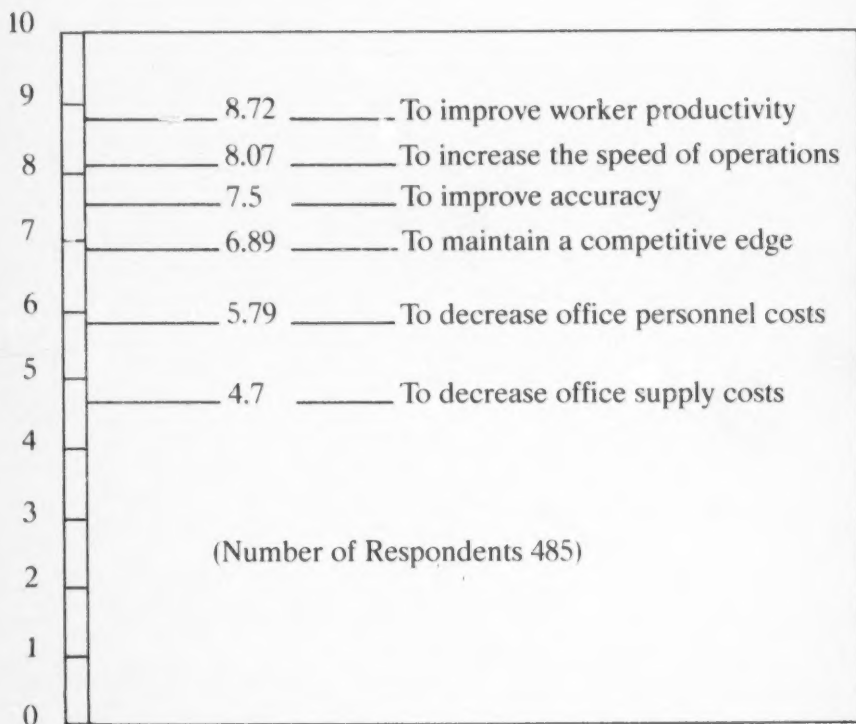
The decision to purchase automated equipment and systems reflects a number of basic objectives. Employers were asked to rank each of six motivating factors on a scale of one to ten, ten being the most important and one the least. The averages are shown in the following chart.

The desire "to improve worker productivity" ranked highest among the six, receiving an aggregate score of 8.72. It was followed by the desire "to increase the speed of operations" at 8.07, and "to improve accuracy" at 7.5.

Other factors rated less important were "to maintain a competitive edge" (6.89) and "to decrease office personnel costs" (5.79). The reason ranked lowest (4.7) was "to decrease office supply costs."

The relative standing of these six factors clearly indicates the essentially *positive* nature of the motivation to automate; e.g., improving productivity, speed and accuracy, as opposed to what could be considered the *negative* aspects of cutting costs, especially decreasing personnel costs.

Chart: Which of the following factors do you believe are most important to your company in considering purchasing automated equipment? I'd like you to rate them on a scale of 1 to 10 with 10 being the most important and 1 being the least important reason.



Meeting New Personnel Needs

One of the most critical aspects of implementing automation is meeting the needs for trained operational and managerial personnel. Companies must decide whether or not to hire trained people, train existing staff members for new roles, hire temporaries until other staff can handle the new equipment, or some combination of these options. If training is required, they must decide how it is to be developed and who will carry it out.

Four out of five companies (82%) trained their own staff to become operating personnel, and seven out of ten (71%) did likewise for managerial staff (Table 1.4). This was the most popular method of meeting staffing needs for both categories of workers.

Table 1.4: How did you meet your needs for skilled staff to operate this new equipment and to manage its operation?

	<u>Operation</u>	<u>Management</u>
	%	%
Trained own personnel	82	71
Hired trained personnel	48	40
Hired temps until own staff was trained	9	10
(Number of Respondents)	(491)	(491)

Note: Totals exceed 100% because some respondents chose more than one answer.

Hiring trained personnel was a method practiced by almost half the companies (48%) seeking operating staff, and somewhat less by those (40%) seeking managerial staff. One-third of the employers (34%) trained their own staff to become operating personnel *and* hired trained workers as well. One company in ten hired temporary employees while staff was being trained.

The development of the necessary training program also reveals the tendency of a number of companies not to rely on a single method. About half the employers (52%) developed their own training programs internally, and half (51%) utilized programs provided by manufacturers (Table 1.5). One-fifth of the sample (21%) used both these approaches (Table 1.6). About a fifth (21%) sent their employees to outside classes, and a seventh (14%) hired an outside consultant.

Table 1.5: Who developed your training program?

	<u>%</u>
Manufacturer	51
Developed in-house	52
Hired outside consultant	14
Enrolled employees in classes conducted at an outside institution	21
Other	1
(Number of Respondents)	(491)

Note: Total exceeds 100% because some respondents chose more than one answer.

Table 1.6: Who developed your training program?

<u>Manufacturer</u>	<u>Developed in-house</u>	
	<u>Yes</u>	<u>No</u>
	%	%
Yes	21	32
No	32	16
(Number of Respondents)	(491)	

Note: Figures refer to percentages of *total* sample.

In terms of actually carrying out employee training, half (51%) of the companies did this themselves, while a third (32%) relied on the equipment manufacturer or supplier (Table 1.10). Three percent (3%) did both. None of the other possibilities, including retaining outside consultants or sending employees to classes outside the office, received any substantial following.

Table 1.7: Who trained your personnel?

	<u>%</u>
In-house	51
Manufacturer	32
Outside consultant	4
Self-training	3
Manufacturer <i>and</i> in-house	3
Other	7
(Number of respondents)	(456)

II: Focus on the Employee

The automation of the office is a process that can be expected to have a significant impact on employees' lives. This impact is not limited to the actual change in worker activities but encompasses a broad range of psychological concerns aroused before and during the conversion process, and even possible social problems stemming from the introduction of new equipment into the office environment. While these problems most immediately affect the employees directly involved in operating the new equipment, resolving them is the obligation of the decision-maker.

The transition to an automated workplace can also have a substantially *positive* effect on employees and their jobs. For many that may mean an enhancement of responsibility and status.

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- Over half the companies (58%) report personnel apprehension prior to the introduction of new equipment.
 - But in the overwhelming number of these cases (91%), apprehension was dissipated, primarily through training or direct experience with the equipment.
 - In about half of the cases (57%), the focus of this apprehension was a general fear.
 - Job security was a focus for a quarter (26%) of the cases.
 - Clerks were more affected by apprehension than any other job category.
 - Eight out of ten companies (82%) report that the introduction of new equipment produced no social problems in the office environment.
 - Half the employers (48%) say the introduction of new equipment changes job categories.
 - Two-thirds of these (64%) say it upgrades positions. Only 1% say it downgrades positions.
 - One-third of the employers (35%) believe automation has resulted in greater responsibility for secretaries.
 - Only 16% believe it has resulted in greater responsibility for clerk-typists.
 - Two-thirds of the employers (66%) do *not* believe certain jobs have become more routine because of automation.

Employee Apprehension

Office automation is a process marked by a high anxiety rate among existing personnel. Over half of the companies (58%) report personnel apprehension prior to the introduction of new electronic equipment (Table 2.1). It is exhibited most often as an unfocused fear of the unknown (57%), but concern about job security also emerges as a significant worry (26%) (Table 2.2). Specific "computer fear" was cited by a relatively small number of employers (8%).

Table 2.1: Was there any apprehension among existing personnel regarding the introduction of new equipment prior to its installation?

	<u>%</u>
Yes	58
No	42
(Number of Respondents)	(471)

Table 2.2: What was the focus of the apprehension?

	<u>%</u>
Fear (general)	57
Job security	26
Computer fear	8
Skepticism	4
Other	5
(Number of Respondents)	(269)

Apprehension affected clerks (40%) more than any other category of worker, including secretaries (22%) and data processors (8%) according to their employers (Table 2.3).

Neither the presence of anxiety nor its focus was significantly affected by the size of the company (in terms of number of total support personnel) or whether the decision to automate was made by a single executive or by a committee.

Table 2.3: What type of staff did it affect most?

	<u>%</u>
Clerical	40
Secretarial	22
All employees	12
Data processing	8
Accounting	6
Managerial	3
Older	1
Other	8
(Number of Respondents)	(264)

Initial uneasiness was alleviated in an overwhelming majority of cases after familiarity with the equipment was achieved (Table 2.4). Nine out of ten companies (91%) reporting apprehension claim it has been dissipated, primarily through the training program (21%) or the actual experience with the new equipment (61%) (Table 2.5).

Table 2.4: Has the initial apprehension been dissipated?

	<u>%</u>
Yes	91
No	9
(Number of Respondents)	(245)

Table 2.5: If so, how?

	<u>%</u>
Experience with equipment	61
Training	21
Jobs not eliminated	4
Position upgraded	3
Management support	2
Other	9
(Number of Respondents)	(249)

Social Problems

In most cases, the introduction of new equipment did not produce social problems in the office such as lowered morale, rivalries, or resentments. Eight out of ten employers (82%) report no such occurrences (Table 2.6). Of the 18% that did, nearly half (48%) were able to overcome these problems through strong management support (Table 2.7). Only a small number of companies (9%) adopted a belligerent or uncompromising policy to deal with these problems.

Table 2.6: Did the introduction of new equipment produce any problems with the office environment in terms of morale, new rivalries or resentment, etc.?

	<u>%</u>
Yes	18
No	82
(Number of Respondents	(458)

Table 2.7: If so, how were these problems dealt with?

	<u>%</u>
Management support	47
Management fiat	9
Problems still exist	3
Other (miscellaneous)	41
(Number of Respondents)	(89)

Most of the companies (89%) that claim the new equipment caused social problems had also experienced employee apprehension prior to its introduction (Table 2.8). This is a significantly higher rate of anxiety than for those who did *not* experience social problems (53%).

**Table 2.8: Apprehension prior to equipment installation
BY
Problems produced by introduction of
equipment**

<u>Prior Apprehension</u>	<u>Problems in Office Environment</u>	
	<u>Yes</u>	<u>No</u>
	%	%
Yes	89	53
No	11	47
(Number of Respondents)	(80)	(365)

Note: Figures refer to percentage of respondents to the question concerning problems in the office environment.

Impact on Job Category and Responsibility

Office automation has had a substantial impact on the position of support personnel. Nearly half (48%) of the employers believe the introduction of new equipment changed the job categories or descriptions of existing personnel such as clerks and secretaries (Table 2.9). This belief was somewhat lower (36%) among companies employing 50 workers or less.

Most frequently, change has meant an upgrading of positions (64% of those reporting change). Only 1% believe it meant downgrading positions (Table 2.10.)

Table 2.9: Has the introduction of new equipment changed the job categories or descriptions of any existing personnel, such as secretaries or clerk typists?

	<u>%</u>
Yes	48
No	52
(Number of Respondents)	(479)

Table 2.10: If yes, how?

	<u>%</u>
Upgraded position	64
Added word processing skills	4
More decision-making	2
More independence	1
Downgraded position	1
Other	28
(Number of Respondents)	(217)

Employers in about a third of the companies (35%) believe that secretaries are exercising greater responsibility or decision-making because of electronic automation (Table 2.11). This option tended to increase with the size of the company up to a certain point (Table 2.12). Those in companies employing 501-1000 support personnel are twice as likely (59%) to recognize greater secretarial responsibility as those employing 50 or less (28%). But among the largest companies, this opinion falls to 32%.

Table 2.11: Has this automation resulted in greater responsibility or decision-making being exercised by secretaries?

	<u>%</u>
Yes	35
No	65
(Number of Respondents)	(475)

**Table 2.12: Greater secretarial responsibility
BY
Size of company (in terms of number of
executive support personnel).**

	<u>Number of Support Personnel</u>				
<u>Greater Responsibility: Secretary</u>	<u>0-50</u>	<u>51-100</u>	<u>101-500</u>	<u>501-1000</u>	<u>over 1000</u>
Yes	28	37	43	59	32
No	72	63	57	41	68
(Number of Respondents)	(142)	(63)	(126)	(29)	(56)

Note: Figures refer to percentages of those in each size category.

Employers are only half as likely (17%) to believe that clerk typists have acquired greater responsibility or decision-making as have secretaries (Table 2.13). This figure also rises slightly with the size of the company, from 11% of the smallest to 24% of those in the middle range. As with secretarial responsibility, it falls (to 13%) for the largest employers (Table 2.14).

Table 2.13: Has this automation resulted in greater responsibility or decision-making being exercised by clerk-typists?

	<u>%</u>
Yes	16
No	84
(Number of Respondents)	(463)

**Table 2.14: Greater clerical responsibility
BY
Size of company**

Greater Responsibility: Clerk	Number of Support Personnel				
	0-50	51-100	101-500	501-1000	over 1000
Yes	11	16	24	19	13
No	89	84	76	81	87
(Number of Respondents)	(137)	(62)	(125)	(27)	(54)

Note: Figures refer to percentages of those in each size category.

One of the concerns frequently raised regarding office automation is that work may become too routine. Yet two-thirds (66%) of the FORTUNE 1300 sample assert jobs have *not* become more routine due to the new equipment (Table 2.15). This opinion is not affected either by the size of the company or whether its word processing operations are centralized or not.

Table 2.15: Have certain jobs become more routine because of new equipment?

	<u>%</u>
Yes	34
No	66
(Number of Respondents)	(470)

III: Equipment

As noted in Section I, almost all FORTUNE 1300 companies already own some type of sophisticated electronic office equipment. They differ considerably, however, in terms of the type of equipment and systems possessed. Since selecting appropriate units is one of the key questions facing the decision-maker, purchasing criteria take on particular importance.

- Capacity or capability is the primary consideration for selecting electronic systems or equipment, cited by 52% of the companies.
- 95% of the companies own word processing equipment.
- 97% of the companies own data processing equipment.
- About half (52%) of the employers have chosen *not* to centralize word processing operations, compared to a third (33%) that have. 17% do both.
- Accounting is the most common function (77%) handled by data processing.
- Four out of five companies (41%) who own electronic typewriters produce less than 20% of their paperwork on them.
- Only one in ten (9%) of the companies who own word processing equipment rely on them for 80-100% of their typed output.

Criteria for Selection

The major consideration in selecting electronic office equipment is its capacity or capability (Table 3.1). Half the sample (52%) cite this consideration. A third (33%) mention price or cost-effectiveness. These factors emerge as the *only* criteria of importance to a substantial number of companies.

Only an eighth of the firms (13%) mention the adaptability or compatibility of particular models. This is significant because of the importance accorded this factor in recent articles among the business press, particularly when assessing sales.

Overall product quality, efficiency and service were cited by 10% or less of the sample. Ease of operation, another consideration often assumed to be important, was mentioned by only 5%. The reputation of the manufacturer is important to only 4% of the sample.

Table 3.1: What was the major consideration for your company in selecting the system or equipment you chose?

	<u>%</u>
Capacity/capability	52
Price/cost-effectiveness	33
Adaptability/compatibility	13
Overall product quality	10
Efficiency	8
Service	7
Ease of operation	5
Manufacturer's reputation	4
Equipment availability	2
Other	<u>9</u>
(Number of Respondents)	(357)

Note: Total exceeds 100% because many respondents offered several considerations despite the fact that the question asked for only "the major" one.

Degree of Usage of Specific Functions

The survey indicates that possession of particular equipment does not necessarily imply widespread usage. While two-thirds of the employers *own* electronic typewriters with limited memory capabilities, these instruments have become a dominant mode of operation for only a small number of them (Table 3.2). Only about a quarter (28%) of those who own such equipment say 80-100% of their typists use them. In fact, in four out of five of these companies (41%), less than 20% of the typing force uses them.

Table 3.2: Approximately what percentage of your employees who type use electronic typewriters?

% of Employees	<u>%</u>
1-19	41
20-39	18
40-59	8
60-79	5
80-100	28
(Number of Respondents)	(286)

Note: Sample limited to those who own electronic typewriters.

The level of reliance on word processing equipment is even more modest despite the 95% ownership rate (Table 3.3). Only 9% of those possessing some kind of word processing equipment produce 80% or more of their typing on such equipment. Over a third (36%) say less than 20% of their typed output is done using word processing.

Table 3.3: Approximately what percentage of your total typed output is done using word processing equipment?

% of Typed Output	<u>%</u>
1-19	36
20-39	26
40-59	18
60-79	11
80-100	9
(Number of Respondents)	(380)

The survey also indicates that possession of equipment with specific, technological advanced capabilities does not necessarily ensure their full utilization. One of the most advanced developments in electronic technology is communication via machine. Three-quarters of the companies surveyed had word processing or data processing equipment with communications capabilities (Table 3.4). But nearly one out of five companies (19%) do not utilize this capability (Table 3.5). Of those that do, communication to branch and field offices was the most frequent use cited (34%) (Table 3.6). Electronic mail and electronic filing—considered by many experts as the next steps toward the “paperless office”—are found in 28% and 5% of the companies, respectively.

Table 3.4: Does either your word processing or data processing equipment have communications capabilities?

	<u>%</u>
Yes	75
No	25
(Number of Respondents)	(464)

Table 3.5: If so, do you use this equipment for communications?

	<u>%</u>
Yes	81
No	19
(Number of Respondents)	(336)

Table 3.6 If yes, how?

	<u>%</u>
Data network to branch & field offices	34
Internal network	7
Terminal word processing	5
Electronic mail	28
Electronic filing	5
Outside data processing	1
Other (Miscellaneous)	20
(Number of Respondents)	(301)

Organization of Word Processing Operations

One of the most basic questions posed by the introduction of electronic equipment is whether to centralize its operation in a pool or center serving multiple departments or disperse it throughout the various departments. Data processing was originally established as a centralized operation and word processing has followed this model to some extent. It is not, however, the current predominant mode (Table 3.7).

About half the employers (52%) have chosen *not* to centralize their word processing operation. A third (33%) have opted for centralization, while the remainder (15%) uses both. Companies with more support personnel tend to be less centralized (Table 3.8).

Table 3.7: Is your word processing work performed in a centralized word processing area or throughout the office?

	<u>%</u>
Centralized	33
Non-centralized	52
Both	15
(Number of Respondents)	(460)

**Table 3.8: Location of Word Processing Operation
BY
Size of Company**

Location	Number of Support Personnel				
	0-50	51-100	101-500	501-1000	over 1000
	%	%	%	%	%
Centralized	45	40	26	23	14
Not centralized	46	49	54	57	61
Both	8	11	20	20	25
(Number of Respondents)	(134)	(63)	(120)	(30)	(57)

Note: Figures refer to percentages of those in each size category.

Meeting Word Processing Needs

Four out of five employers (83%) are considering purchasing some type of word processing equipment (Table 3.9). No single component, however, is under consideration by more than a third of the sample.

Projected equipment purchases fall into two distinct groups: those being considered by about a third of the companies, and those being considered by a quarter, as indicated in the table.

Table 3.9: Which of the following types of word processing equipment is your company considering purchasing in the future?

	<u>%</u>
Multiple units with shared logic	35
Stand-alone word processors with separate printer	34
Data processing equipment with word processing capabilities	33
Individual desk-top computers with word processing software	33
Electronic typewriters with limited memory capabilities	26
Terminal linked to outside computer	23
Network word processing	23
None	17
(Number of Respondents)	(500)

Note: Total exceeds 100% because some companies chose more than one answer.

Plans for future word processing acquisition are strongly linked to company size. The larger companies are more likely to be considering the purchase of the widest variety of components. (Table 3.10).

**Table 3.10: Consider purchasing word processing equipment
BY
Size of Company**

Equipment	Number of Support Personnel				
	0-50	51-100	101-500	501-1000	over 1000
	%	%	%	%	%
Multi-terminals with shared logic	28	32	45	48	48
Stand-alone word processor with separate printer	30	31	39	32	43
Data processing with word processing capabilities	22	39	41	36	41
Individual desk-top computers	25	31	40	36	41
Electronic typewriters	21	20	27	45	36
Terminal linked to outside computer	19	25	27	26	31
Network word processing	15	15	25	42	40
(Number of Respondents)	(153)	(65)	(128)	(31)	(58)

Note: Total exceeds 100% because some companies chose more than one answer.

METHODOLOGY

This report is based on a telephone survey of 500 personnel managers of the FORTUNE 1300 companies. These include the FORTUNE 1000 industrial companies and lists of the fifty largest companies in six non-industrial categories. All but thirteen (3%) of the final sample were drawn from the FORTUNE 1000 industrial list. All phases of the research and report preparation were carried out by Research & Forecasts, Inc. of New York City.

Prior to the commencement of the survey, articles, studies, and other existing material were collected and studied. This contributed to the development of the questionnaire. The questionnaire was pretested in about two dozen telephone interviews.

The interviews were conducted during regular business hours from September 17—October 1, 1982. Each of the 1300 companies was called at least five times or until an interview was completed or refused. The average length of each interview was 15.45 minutes. The sponsor of the survey was not identified.

The questionnaire included closed-ended (multiple choice) and open-ended questions that were subsequently coded into specific response categories. In a number of cases the response defied complete categorization, which accounts for the unusually large "other" category.

Most of the tables in the text provide "adjusted frequencies," i.e., percentages of respondents who gave definite answers; "Don't know" and "No answer" are eliminated in these figures.